

Remarks

Applicant respectfully traverses the Examiner's rejection and submits that the pending claims, as now amended, fully distinguish over the cited references and represent allowable subject matter.

The amendments to claims 1, 3-6, 10, and 21 are made to overcome the Examiner's Section 112 rejections. Claim 19 has been amended to more clearly claim the invention by adding a step requiring the removal of the core and the capsule.

In addition, the preamble of claims 1, 19, and 21 have all been amended to remove language directed to corrosion and erosion resistance thereby obviating the Examiner's Section 112 rejection based on this language. Claim 19 has been further amended to delete the unnecessary term "in powder form" (used with reference to the first material) and any reference to porosity, and claims 19 and 21 have further been amended to make it clear that the second material has less corrosion or wear resistant than the first material. New claim 22 has been added, dependent on claim 1, to require that the first material be more wear resistant than the second material.

No new matter is added by these amendments.

Section 112 Rejections

The Examiner rejects claims 1-6, 9-17, 19, and 21 pursuant to the second paragraph of Section 112, alleging that these claims are indefinite.

Regarding Claims 3 and 4, the Examiner states that "it is unclear from where the core and the capsule are being removed." (Emphasis original.) Claims 3 and 4 depend from claim 1 and the method steps of claim 1, as now amended, should clarify the invention for the Examiner. Claim 1 clearly explains that the method involves first providing a sacrificial core having an outer surface of a predetermined shape. A first material is then applied to at least a portion of the outer surface of the sacrificial core. Next, the core-first material composite is substantially enclosed within a capsule and a quantity of a second material is introduced within the capsule such that at least some of the first material is in contact with at least some of the second material.

Thereafter, the first material is caused to metallurgically bond to the second material. According to claim 3, following the step of causing the first material to metallurgically bond to the second material, the sacrificial core and the capsule are removed, leaving behind the component fabricated according to the method.

The Examiner also objects to the term "corrosion and erosion resistant," stating that these terms have no clear meaning. Applicant respectfully disagrees, but nevertheless has removed this language from the preambles of the independent claims. However, the additional use of these terms in other claims does not render the claims unclear because the claims merely characterize the first material as being more corrosion resistant (and/or wear resistant) than the second material. In this context, since the use of these terms is relative, the context is clear.

Claim 6 has been amended, in view of the Examiner's Section 112 rejection, to provide proper antecedent basis for the term "spraying technique." Similarly, claim 10 has been amended to provide proper antecedent basis for the term "metal-based alloy."

The Examiner rejects claim 14 pursuant to the second paragraph of 35 U.S.C. §112, alleging that the term "hot" is a relative term. Applicant respectfully disagrees and points out that claim 14 refers to a process that is commonly known as "hot isostatic pressing." Thus, "hot" is not used as an adjective to modify the term "isostatic pressing." Rather, this is part of the full name of a well-known process. In fact, the Becker reference, which is based on a patent application originally filed in 1980, states that "[h]ot isostatic pressing (HIP) is well-known in the art and is described, for example, in Chapter 9 of the "Powder Metallurgy Equipment Manual" of the Powder Metallurgy Equipment Association, 2nd Ed. 1977." (Becker, col. 1, lines 41-44.)

Claim 21 has been amended to provide proper antecedent basis for the term "fabricated component."

Applicant submits that the pending claims fully comply with §112, and the Examiner is respectfully requested to withdraw all rejections based on §112.

Prior Art-Based Rejections

The Examiner rejects claims 1-2, 11-12, 14-15, and 21 as being anticipated by and/or rendered obvious by Becker. Applicant respectfully disagrees and requests that the Examiner withdraw this rejection.

Becker discloses a technique that is entirely different than the claimed method. Becker's method starts with a valve body and the object of Becker is to line the valve body with a different material that is more corrosion resistant than the material from which the valve body is made. Conversely, the claimed method provides a process that can be used, for example, to form a valve body. Becker's technique involves placing a can within a valve body and then adding a metal powder (which will eventually plate the valve body) between the valve body and the can. A vacuum is drawn and the valve body is subjected to heat and pressure, which causes the metal powder to consolidate into a solid lining that is bonded to the inner wall of the valve body. The final steps involve any necessary heat treatment, and machining of the valve body.

Becker clearly fails to disclose or suggest numerous steps of the claimed invention. Regarding claim 1, Becker does not disclose or suggest providing a sacrificial core having an outer surface of a predetermined shape. Nor does it disclose applying a first material onto at least a portion of the outer surface of the sacrificial core and then substantially enclosing the first material and the core within a capsule. Becker also fails to disclose or suggest the subsequent step of introducing a quantity of a second material within the capsule such that at least some first material is in contact with at least some of the second material and then causing the first material to metallurgically bond to the second material.

Only a misreading of Becker could provide an interpretation of Becker's disclosure that renders it even remotely similar to the claimed invention. However, even such a misreading of Becker fails to disclose or suggest the claimed invention. That is, if Becker's can is considered to be a "core" and its valve body is considered to be a "capsule," Becker still fails to disclose or suggest introducing a quantity of a second material within the capsule such that at least some of the first material is in contact with at least some of the second material. Applicant notes, however, that Becker's can cannot be considered a "core" and its valve body cannot be considered a "capsule" in the context of the claimed invention because Becker's technique

simply does not allow the material inserted between the can and the valve body to bond to the can. Instead, this material actually bonds to the inner wall of the valve body, thus forming a corrosion resistant lining for the valve body. Claims 1 and 21 require that the first material be applied to at least a portion of the core. Becker does not do this. Instead Becker applies the material to the valve body, not to the can.

In view of the foregoing, Applicant submits that claims 1-2, 11-12, 14-15, and 21 fully distinguish over Becker.

The Examiner also rejects claims 5, 9-10, 13, and 16-17 as being obvious over Becker.

Applicant notes that these claims all depend, directly or indirectly, from claim 1. Accordingly, they contain all limitations of claim 1 and distinguish over Becker for all of the reasons noted above.

Claims 6 and 19 stand rejected as being obvious over Becker in view of Arnold '978 or Arnold '845.

Claim 6 depends from claim 1 and distinguishes over Becker for reasons noted above.

The Arnold references, which are directed to methods of repairing gas turbine engine air foil parts, are irrelevant to the claimed invention and do not remedy any of the deficiencies of Becker. Neither the Arnold references nor the Becker reference disclose or suggest the use of a sacrificial core to which a first material can be applied. These references, alone or in combination, also fail to disclose enclosing the first material and the sacrificial core within a capsule and introducing a quantity of a second material into the capsule such that at least some of the first material is in contact with at least some of the second material, and causing the first material to metallurgically bond to the second material. The combination of references also fails to disclose or suggest the final step of claim 19 in which the core in the capsule are removed to yield a fabricated component having a hollow cavity with an inner surface formed of the first material. Accordingly, Applicant respectfully requests that this rejection be withdrawn.

In view of the amendments and arguments made above, Applicant submits that the pending claims fully distinguish over all cited references, alone or in combination with each other. Accordingly, Applicant respectfully requests that the rejections be withdrawn and that a Notice of Allowance be issued. The Examiner is urged to telephone the undersigned attorney for Applicant in the event that such communication is deemed to expedite prosecution of the application.

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Respectfully submitted,

By 
William C. Geary III
Registration No.: 31,359
NUTTER MCCLENNEN & FISH LLP
World Trade Center West
155 Seaport Boulevard
Boston, Massachusetts 02210-2604
(617) 439-2766
(617) 310-9766 (Fax)
Attorneys for Applicant

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